

Organizing Pacific Science: Local and International Origins of the Pacific Science Association¹

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IN AUGUST 1920, less than 2 years after the close of World War I, Honolulu played host to the First Pan-Pacific Science Conference. One hundred and three participants, from as far away as New England, New Zealand, the Philippines, and the United Kingdom, assembled for 3 weeks of papers, field excursions, and camaraderie. The first conference was so successful that its organizers resolved to hold a second within 3 years. Melbourne and Sydney were chosen as joint sites for the Second Pan-Pacific Science Congress, held in August 1923. The number of participants had grown to 580, and the countries represented increased to 16 (Secretariat of the Pacific Science Council 1951, Elkin 1961).

With a pattern of success emerging, congress advocates began to think that a modest but permanent institutional structure was necessary to ensure efficient congress planning. A constitution was drafted calling for an association of member countries, each represented by its national academy, research council, or other scientific institution of recognized national stature. With the approval of this constitution at the third congress in Tokyo (1926), the Pacific Science Association (hereafter PSA) was born.

PSA is now entering its third generation, and its congresses have been among the most prominent scientific events in the Pacific region for 65 years. Sixty-five may be a common retirement age for individuals, but PSA, now

planning a return to Honolulu in 1991 for its seventeenth congress, shows no signs of senility. The present volume (MacLeod and Rehbock 1988) seems an opportune occasion for examining the early history of PSA, with a view to determining more precisely the local, national, and international circumstances that brought it into existence, and why, when so many other international and Pan-Pacific schemes of the post-World War I era failed to survive, PSA continues to thrive.

International congresses have been an increasingly prevalent phenomenon in the lives of scientists and other professionals since their inception in the late nineteenth century (Schroeder-Gudehus 1977).³ For the rest of the world, such events may be a context for intrigue and defection, as purveyed in television thrillers and occasionally in novels; one thinks of Arthur Koestler's (1973) *The Call Girls*, for example, in which a neurotic collection of scientists meets at Schneedorf, Switzerland, to discuss "Approaches to Survival." From the viewpoint of the organizers and participants, however, international congresses serve a multitude of perhaps less dramatic but serious purposes. Generally, the overt aims of the participant are to report on new research and solicit advice and criticism before formal publication; to learn of developments at the leading edge of one's discipline, or to acquire more general knowledge of peripheral areas (especially for those who are geographically distant or intellectually isolated); and to discuss directions for future research. Other objectives less often mentioned are frequently more prominent. Con-

¹ This essay was presented at a symposium on Western science in the Pacific held at the XVIIth International Congress of History of Science at Berkeley, California, in August 1985 and appeared in a volume of collected essays, *Nature in its Greatest Extent* (MacLeod and Rehbock 1988). It is reprinted here with corrections and minor editorial changes.

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³ Perhaps the earliest international scientific congress with an oceanic orientation was the Maritime Conference held in Brussels in 1853, at which 10 nations drew up a plan of oceanographic data collection (Maury 1963).

gresses give opportunities to claim priority in discovery; to reduce unnecessary duplication in research effort; to establish new contacts outside the meeting rooms in the informal networks of the congress;⁴ and to surmount the national considerations that surround intellectual work (see Crane 1971). Finally, they enable scientists to interact as peers with scientists of international stature; and they provide the excitement of travel to a foreign country and escape, if only momentary, from the frustrations of domestic institutions.

It is likely that the participants of the early Pacific science congresses recognized most if not all of these objectives. Later, I will describe some additional motivations—relating especially to the financial support of science—expressed at the first congress. For the moment, however, it is worth noting that from the outset PSA organizers stressed the importance of the congress as a vehicle for addressing the problems of Pacific islanders and for promoting peace among Pacific peoples (Constitution of the PSA 1951). The political benefits of international scientific cooperation, a common theme of the cold war era and epitomized in the Pugwash Movement (Rotblat 1972, Schroeder-Gudehus 1973), were, in the 1920s, first voiced in the Atlantic community. That these motivations surfaced so early in the Pacific context as well was clearly the result of the unique circumstances that brought about the first congress.

SCIENCE AND INTERNATIONALISM FOLLOWING WORLD WAR I

One of the well-known legacies of the 1914–1918 war was the fervent hope that new instruments of international cooperation might be

forged that would deal peacefully with political and economic disputes and thus prevent future wars. Woodrow Wilson's League of Nations was the most visible, but certainly not the only postwar organization to proclaim the furtherance of international brotherhood among its primary goals. A wave of internationalist sentiment swept the globe and, as we shall see, had an impact in the Pacific as well as in the Atlantic. Probably the best-known scientific institution to emerge from this era was the International Research Council (predecessor of the International Council of Scientific Unions, hereafter IRC), established in 1919 to promote worldwide cooperation in scientific endeavors. Lingering chauvinism prevented the full realization of the internationalist ideal, however, even among scientists: the Central Powers were prevented from becoming members of the IRC until 1926 (Kevles 1971, Forman 1973, Cock 1983).

International cooperation in science in the Pacific became an increasingly prominent theme even during the war years. At the Australia meeting of the British Association in 1914, the advantages of a coordinated approach to Pacific research were touted by the prominent Harvard geographer-geomorphologist William Morris Davis (1850–1934) (H. E. Gregory 1921, 1924a), although in a luncheon address before the Pan-Pacific Club in 1924, H. E. Gregory placed the beginnings of Pacific science enthusiasm even earlier: “for some reason or other, back in 1908, 1909, 1910, and 1911, there was running through all of the scientific societies of the world this problem of the Pacific—they were blocked by certain things—they wanted to know more about the plants in Tahiti, or something about the land shells in Moorea, or race migration to Samoa” (H. E. Gregory 1924b). By 1916, in the middle of the war, Davis arranged a “Symposium on Pacific Exploration” at the annual meeting of the U.S. National Academy of Sciences. Davis argued that the eighteenth-century voyages of discovery had employed a “discontinuous and local” method of scientific exploration, while nineteenth-century research in the Pacific had been “continuous and linear.” The time had now come for a

⁴ Although sociologists of science have often stressed the significance of informal communication networks, there has not been as much sociological analysis of scientific meetings, especially at the international level, as one might like (Compton 1966, Garvey et al. 1972, Meadows 1974, Ziman 1976:110–112). Of course, the more such meetings an individual attends, the less significant each meeting may seem, until one approaches the nadir described by John Ziman (1981:267).

survey that would be continuous both temporally and geographically: "Discontinuous, local or linear, individual work, economically conducted, cannot, however excellent, compass the immense extent and the infinite variety of that great water hemisphere. Thoroughgoing Pacific exploration will demand most munificent support" (Davis 1916).

From this symposium emerged the Committee on Pacific Exploration, appointed by the National Academy. After the war, this committee—led by the Berkeley paleontologist John Campbell Merriam (1869–1945), later president of the Carnegie Institution—was transferred to the newly established National Research Council and its Division of Foreign Relations and given the new title "Committee on Pacific Investigations." This committee would become one of the leading agencies in the organization of PSA.

Meanwhile, several West Coast exhibitions and conferences were focusing fresh attention on the Pacific region. The opening of the Panama Canal in 1914 was the stimulus for the Panama-Pacific International Exposition in San Francisco the following year. In conjunction with the exposition, historians led by H. Morse Stephens, professor of Pacific history at the University of California, Berkeley, held a Panama-Pacific Historical Congress in San Francisco, Berkeley, and Palo Alto. In his presidential address, Stephens (1917) argued that the opening of the canal had begun a major new chapter in Pacific history, citing four "chapters" of Pacific Ocean history: (1) the Spanish Lake, ca. 1500–1700; (2) European competition, 1700–1800; (3) Spanish and American control of the west coast of America, and the rise of Japan, 1800–1900; and (4) opening of the Panama Canal. Concurrently, at the American Association for the Advancement of Science (AAAS) meeting in San Francisco, Reginald A. Daly (1871–1957), Davis's geological successor at Harvard, delivered a lengthy address on "Problems of the Pacific Islands," with suggestions for new exploration (Daly 1916). Geologists were clearly among the most vocal advocates of Pacific science in those years.

Pacific issues continued prominent in California at the 1918 Conference on Interna-

tional Relations (part of the University of California's fiftieth anniversary celebrations), and in 1919 at the new Pacific Division of the AAAS, meeting that year in Pasadena. A major event at the Pasadena meeting was a symposium on "The Exploration of the North Pacific Ocean," organized by William E. Ritter, then director of Scripps Institution for Biological Research. Ritter called for an extensive program of research on economic aspects of the biology, oceanography, and meteorology of the North Pacific as the only means of mitigating what he saw as the major problem of the Pacific, namely the inevitable diffusion of Asians across the Pacific to the Americas—the latest chapter in the history of the "yellow peril" (Ritter 1919*a,b*).⁵ Both Ritter and his successor at Scripps, T. Wayland Vaughn, were to be key figures on the Committee on Pacific Investigations and at the early Pacific science congresses, although it would be the topic of Pacific island depopulation far more than Pacific rim migration that would exercise the congresses.

The quickening of Pacific science on the American West Coast during the early decades of this century should also be seen as a stage in the progressive evolution of American science. The American scientific community in the East had reached maturity and increasingly saw itself as equal in energy and intellect, and more than equal in numbers, to its European counterpart (Cohen 1963, Basalla 1967). And as this eastern node gained recognition, wealthy patrons aided eager scientists to establish cultural bearings in the Far West. The steadily growing list of scientific institutions on the West Coast—from the Lick Observatory in 1888 and the Mount Wilson Observatory in 1904, to the Scripps Institution in 1912, the Pacific Division of the AAAS in 1914, and the Throop Polytechnic (becoming the Cali-

⁵ It should be remembered that in 1919 Japan was one of the five dominant powers at the Paris Peace Conference and a rising power in Asia, with Germany's former Pacific islands mandated to her control. Japan's economy and population were growing rapidly, exacerbating the need for sources of raw materials and destinations for emigrants. A rapid buildup of the Japanese navy was also underway.

fornia Institute of Technology in 1920)—were symbols of this new western dynamism. Looking even farther west, however, we find an even stronger enthusiasm for an international assault on Pacific science in the recently acquired territory of the United States, Hawaii.

The circumstances surrounding the First Pan-Pacific Science Conference were decisively shaped by movements for internationalism and science in Honolulu, beginning shortly after the turn of the century. From the 1880s, King Kalakaua and his chief minister, Walter Murray Gibson, had advocated internationalist ventures that would assure the Hawaiian monarchy a central role in the political affairs of the remaining independent native peoples of Polynesia, if not of the entire Pacific, and would, at the same time, rejuvenate the Hawaiians' self-esteem and pride in their own cultural traditions. Moreover, the enduring social myth of Hawaii—the land of paradisaical beauty and multicultural harmony—had by this time already taken hold, providing activists with ample rationale for promoting the Islands as, simultaneously, an ideal tourist destination, a logical entrepôt of trans-Pacific commercial and naval activities, and the supreme example of racial cooperation to all Pacific nations (Hooper 1980).⁶

Kalakaua's actions were confined to friendly personal diplomacy with Pacific leaders, but the flamboyant Gibson went so far as to issue a "Monroe Doctrine of the Pacific" in 1883—protesting the annexation of Pacific islands by European powers—and to advocate a federation of Polynesia led from Hawaii (Tate 1960). Though Gibson's efforts were unsuccessful, he gave enduring credence to the belief that Hawaii was destined, even obligated, to become involved in affairs far beyond its own shores. These dreams were temporarily forgotten with the ouster of Gibson in 1887 and the demise of the Hawaiian monarchy in 1893, and they gave way to the larger considerations of internal political and economic policy when the Hawaiian re-

public became a U.S. territory in 1898. But in the next decade, internationalist sentiments reappeared. The leader of this second wave of Hawaiian internationalism, beginning around 1910, was not a veteran of the earlier turbulent years but a newly arrived devotee of island culture and a fresh convert to Hawaii-Pacific internationalist causes.

Alexander Hume Ford (1868–1945) seemed an unlikely candidate to become one of the most colorful and energetic figures of early twentieth-century Hawaiian history. A native of South Carolina, Ford left his parents' rice plantation in 1886 for New York and a career in journalism. The offer of a position with the construction of the Trans-Siberian railway, plus writing assignments for *Harpers* and several other magazines, took him to Siberia in 1899, with a 1-day stopover in Hawaii. Anxious to experience the islands at greater length, Ford returned as journalist with a congressional fact-finding party in May 1907, and from then until 1935 Honolulu remained his home base (Noble 1980).

At first, Ford occupied himself principally with efforts to expand Hawaii's young tourist industry, but tourism gradually merged with schemes to increase social contact among Hawaii's many racial groups and at the same time promote interracial harmony on a Pacific-wide basis. In 1908 Ford was appointed to the governor's Territorial Transportation Committee to effect tourism arrangements with Australia and New Zealand. In 1911 this committee evolved into a luncheon group, the Hands-Around-the-Pacific Club, following Honolulu's first Pan-Pacific conference (which dealt with tourism, commerce, and immigration) (Ford 1918, Hooper 1972).⁷ The club became the Pan-Pacific Union in 1917, the most powerful and enduring of Ford's innovations.

⁶ In the mid-1880s tourists to Hawaii already numbered between 500 and 750 per year; by 1923 the recorded number was 12,021 (Joesting 1972:261–262).

⁷ Ford's interest in organizations for international cooperation was apparently first aroused while working for the *Daily News Record* in Chicago in the 1890s. At that time he came in contact with William E. Curtiss, who later became first director of the Bureau of American Republics, predecessor to the Pan-American Union (Hooper 1972).

Modeled consciously upon, and with assistance from, the Pan-American Union, the Pan-Pacific Union took as its charge the improvement of relations among the peoples of the countries within and bordering on the Pacific. Ford conjured up a seemingly endless agenda for the union: bureaus of information to distribute educational materials in each Pacific country; large dioramas to depict Pacific culture; a Pan-Pacific exposition and other, local fairs to exhibit native products and handicrafts; a Pan-Pacific Commercial Museum and Art Gallery in Honolulu; even a permanent college for "training men in [the] commercial knowledge of Pacific lands" (Bernice P. Bishop Museum 1917). Ford hoped, in his own words, to see created a true "Patriotism of the Pacific" in this "Great Theater of the World's Commerce" (Ford 1918). And Hawaii was to provide both leadership and example.

The course of Ford's various ventures was well documented in his monthly journal, *Mid-Pacific Magazine*. Begun in 1910, *Mid-Pacific* was at first largely a travel guide, its articles celebrating the enchanting physical beauties of Hawaii and other Pacific tourist destinations. By 1915, however, Ford's increasing activities in international relations had transformed the magazine. It now emphasized Hawaii's centrality in the political and commercial affairs of the Pacific, with a rationale based not merely on geographic location but on its rich racial and cultural blend. If, as Ford argued, harmony among the races could exist in Hawaii, the microcosm, could it not exist among the peoples of the entire Pacific region? The best insurance for peace in the Pacific community was, he thought, cross-cultural understanding: every country, every people, must become acquainted with the customs and objectives of every other (Hooper 1980).

The keystone, and in the end the most successful, of the Pan-Pacific Union's plans was a series of international conferences intended to bring together delegates from all Pacific nations, generally to be held in Honolulu, the "cross-roads of the Pacific," as Ford loved to call it. The first of these conferences was none other than our First Pan-Pacific Science Conference of 1920.⁸

THE PACIFIC SCIENTIFIC INSTITUTION

Ford's 1920 conference was not the first attempt to launch a coordinated research effort in Pacific science from a Hawaiian base. That prize must go to the elusive and ill-fated Pacific Scientific Institution (PSI), incorporated in Honolulu in 1907. Although Ford arrived in Hawaii that year, he seems to have had no direct connection with PSI, the brainchild of William Alanson Bryan, Jr. (1875–1942), ornithological curator of Honolulu's Bernice P. Bishop Museum, and of the museum's first director, William T. Brigham (1841–1926). At the age of 24, Bryan had been sent to Hawaii to survey the Hawaiian fauna for the U.S. Department of Agriculture. Possibly as early as 1905 he had become convinced of the necessity for a major survey of all the Pacific islands, to include ethnography and geology as well as zoology and botany (Bryan, n.d.).

At first Bryan worked closely on the survey plan with Brigham—in fact, much of the original concept may have been Brigham's. Brigham (1907a) wrote a paper entitled "Shall We Explore the Pacific Islands Now?,"⁹ which he evidently intended to deliver at the

⁸ Some Pan-Pacific Union papers are presently held in Governor McCarthy-Miscellaneous Papers, Hawaii State Archives; and allegedly in the University of Hawaii Archives, although these could not be located at this writing. Ford's conference-organizing experiences began at least as early as 1890, when he was involved in a midwest conference on irrigation (Bulletin of the Pan-Pacific Union 1920). And as early as 1911 the Hands-Around-the-Pacific Club had resolved to work toward convening a world peace congress in Hawaii (Hooper 1980).

⁹ Brigham (1907a) advocated "a survey of the mid-ocean groups; their topography, ethnology, marine zoology. While this applies primarily to the Polynesian and Micronesian region proper it perhaps more strongly attaches to the Solomon islands, the Bismarck Archipelago and New Guinea for in this region must be traces of the eastward bound immigration, if that theory be correct, and it seems to be a fact that Polynesian settlements are all along that line." Ethnology was thus uppermost in his mind. Earlier in the year, in his director's report for 1906, Brigham (1907c) described plans for a "comprehensive exploration of the whole Pacific region," which he claimed to have conceived 40 years earlier. The program would require \$450,000 per year, would take 15 years, and would be published in 100 quarto volumes.

inaugural meeting of the American Association of Museums, held in New York in May 1906. But finding himself unable to attend the meeting, Brigham sent Bryan to read the paper and at the same time forwarded advance copies to a number of influential colleagues, requesting that their reactions be sent to Bryan in New York. Responses to the Bryan-Brigham plan were highly supportive, and Bryan went ahead with the drafting of a charter, naming himself president of PSI, with Brigham as honorary or consulting director. Several additional organizations were proposed to support the survey: a marine biological laboratory, a zoological garden and aviary, and a "garden of acclimatization." Financial support soon began to arrive. In June 1906 C. M. Cooke of Castle and Cooke, one of Hawaii's "Big Five" sugar entrepreneurs, promised sugar bonds worth possibly \$100,000, the interest from which was to finance the biological laboratory. Support for other projects followed (Bryan 1907, 1908, Pacific Science Institution 1907).

By November, however, relations between Bryan and Brigham had deteriorated. The precise cause is unknown, but the two seem to have been at odds over both the scale and focus of the intended survey. Brigham was concerned that ethnographic data be collected before it was too late, whereas Bryan envisaged a much broader program, one of natural history investigation. Moreover, Bryan, the aggressive 31-year-old curator, had apparently become an annoyance to his 66-year-old superior, who was irritated by Bryan's assumption of the leading role in PSI (see Brigham 1907*b*). On 6 November Brigham advised Bryan (in an interview the substance of which was later contested) that the Bishop Museum could not assume support of the survey, nor would he (Brigham) allow himself to be designated honorary director. The following summer Bryan's contract as curator at the museum was not renewed. The museum trustees thanked him cordially for his services but gave no explanation for terminating his employment.

Over the next 2 years Bryan devoted much of his time to the promotion of PSI and its survey. By late 1907 the institution was for-

mally incorporated in accordance with the laws of Hawaii, and a board of trustees was assembled consisting of Bryan and 14 of Hawaii's most prominent business and judicial leaders. At the end of the year Bryan read a paper outlining the aims of PSI before the zoological section of the AAAS at its meeting in Chicago. The exploring expedition was to be the centerpiece of PSI's program:

The present plan for field work [Bryan explained] is to acquire an especially equipped yacht of from five to seven hundred tons capacity, which will be provided with sails as well as oil-burning engines, and fitted with the necessary accommodations for fifteen scientific men, including laboratories, field library, storage tanks, etc. This vessel, using Honolulu as a base, and establishing secondary focal points from which to carry on its work, will make cruises to the various groups of islands in the Pacific region. The voyages can be so arranged that the entire ocean, with its more than two thousand islands, may be thoroughly covered in about fifteen excursions. Thus the vast region would be worked over, group by group, with a fully equipped corps of especially trained field scientists; the time required to complete the work, of course, varying with the number and size of the parties in the field. In this way the work and publication on any group as for example on the Society Islands, would be uniform and complete; every department of ethnology and natural history will be treated, both in the field and in the subsequent publication, by a specialist. By reason of a carefully prearranged plan, the study of each island will be made with an understanding of the great ultimate object, namely, knowledge of the Pacific Ocean as a whole. The data thus gathered will always be even and of a comparable character. (Bryan 1908)

Bryan corresponded widely with scientific leaders, from anthropologist E. B. Tylor at Oxford to Stanford University president David Starr Jordan, and by the end of 1908 a thick file of testimonials in support of the program was on hand. One of Bryan's type-scripts of that period even refers to the survey as the "James J. Hill Pacific Exploring Expedition," suggesting that he had hopes for financing from the Great Northern Railway magnate. But no further publications were issued, and no additional financing was forthcoming. Cooke's contribution of sugar bonds had been conditional upon Bryan's finding other funds to support the main survey. In 1909 Bryan accepted an appointment as professor of zoology and geology at the newly established College of Hawaii. Perhaps these

new duties prevented his continued advancement of PSI; perhaps he had expectations that the college would eventually take on the institution's mission; or perhaps Brigham convinced PSI trustees that Bryan's scheme was too grandiose to be managed and that the Bishop Museum would accomplish many of the same objectives, given time. In any case, nothing further was heard of PSI.¹⁰

Ironically, just as Bryan's dreams of a Pacific-wide research program were fading, Alexander Hume Ford was beginning to conceive his schemes for international brotherhood that would lead to the Pan-Pacific science conference. Although scientific research was not initially among Ford's schemes, the notion of promoting Pacific science through international conferences was certainly in his mind by 1917 when the Pan-Pacific Union (PPU) was formally organized. There is unfortunately no known surviving correspondence between Bryan and Ford, but certainly their paths crossed frequently: Bryan was corresponding secretary of Ford's Hands-Around-the-Pacific Club in 1912, and he was on hand for the conference in 1920. Indeed, Hooper (1980) suggested that Ford's later Pan-Pacific Research Council (created in 1921) may have been "inspired" by Bryan's earlier plans (see also Hooper 1972). Moreover, several of the trustees of PSI were among the founding trustees of Ford's PPU. Thus it seems likely that Bryan's focusing of attention on the need for Hawaii to take the lead in organizing a vigorous and extensive program

of science in the Pacific gave Ford's scientific promotions a ring of familiarity and helped lubricate the legislative process when public funds were eventually sought.

THE PAN-PACIFIC SCIENCE CONFERENCE

From its establishment in 1917, the PPU's foremost priority was the arrangement of international conferences in Hawaii, the charter proposing "to call in conference delegates from and representatives of all Pacific peoples for the purpose of discussing and furthering the interests common to Pacific nations" (Ford 1917). As World War I ended, PPU was proposing that a Pan-Pacific commercial and educational congress be held in Honolulu in 2 or 3 years' time. By April 1919 the territorial legislature had voted \$10,000 for this proposal, with the proviso that at least three other Pacific countries appropriate funds to send delegates. To plan the conference, Governor Charles J. McCarthy appointed a committee chaired by George P. Denison, general manager of Oahu Railway Company and a founding trustee of the PPU. Denison's committee made the pivotal decision in July that the subject of the first commercial and educational congress should in fact be Pacific science (H. E. Gregory 1921). According to the official call for the conference, "The purpose of the conference is to outline scientific problems of the Pacific Ocean region, and to suggest methods for their solution" (Anon. 1920a). This seemingly minor decision on the part of the Denison committee was in reality the germination of the Pacific science congresses and thus of PSA itself. Unfortunately, records do not relate how this decision was reached, nor who among the committee members might have proposed or supported it. Interestingly, however, three of the committee members, former Governor Walter F. Frear, Castle and Cooke director F. C. Atherton, and Bishop Museum trustee Richard H. Trent (who, like Bryan, was a Democratic hopeful in the gubernatorial nominations of 1914 [see Melendy 1983]), had also been trustees of Bryan's PSI. Bryan's aspirations had not, it seems, been entirely forgotten.

¹⁰The Bryan Papers, University of Hawaii Archives, contain a five-page typescript, "Syllabus of a Proposed Pacific Exploring Expedition," which outlines a "James J. Hill Pacific Exploring Expedition" utilizing a yacht of between 500 and 1000 tons and the Bishop Museum as a base. But by 1912 funding had not been found, and Bryan's energies were being expended elsewhere (see Bryan 1912). Bryan continued his professorship at the College (later University) of Hawaii until his wife died in 1919. He also became active in the local Democratic party and had a reasonable expectation of being named territorial governor by Woodrow Wilson in 1914, an expectation that was dashed at the last moment (see Melendy 1983). When his wife died, Bryan returned to the mainland. He became director of the Los Angeles County Museum in 1921, retiring in 1940.

With the subject for the first Pan-Pacific conference set, Ford traveled to the East Coast to win government and philanthropic support for the PPU's activities. In January 1920 he and other PPU officials convened a meeting in Washington with numerous ministers and trade commissioners of Pacific countries, along with representatives of the Pan-American Union. Among these dignitaries, Dr. Paul Reinsch, the pioneer in international organization and ex-U.S. minister to China (1913-1919), emerged as one of the most vocal advocates of Honolulu-based Pan-Pacific conferences. He was confident that China would support such a movement. He also gave strong backing to one of Ford's longstanding (but ill-starred) objectives: the eventual assumption of control of PPU by the nations of the Pacific (Anon. 1920*b*).

Ford's East Coast junket was successful in at least two respects. Senator Henry Cabot Lodge's Committee on Foreign Relations saw to it that \$9000 was appropriated for Pan-Pacific conferences. And in New Haven, Ford became better acquainted with Herbert E. Gregory, the Yale geologist who would become presiding officer of the Pan-Pacific Scientific Conference, and who would eventually be regarded as the founder of PSA. Gregory (1869-1952) was the eleventh of 13 children of a modest midwestern family. He took both B.S. and B.A. degrees from Gates College in Nebraska, tried teaching briefly, then went on to Yale for graduate study in geology. Receiving his doctorate in 1899, Gregory taught at Yale from then until 1920, holding the Silliman chair of geology from 1904 until retirement in 1936 (H. E. Gregory 1924*c*, Longwell 1953).

When William Brigham retired from the Bishop Museum directorship in 1918, the museum trustees asked Gregory to take over the post. Gregory came to Hawaii as acting director in 1919 and surveyed the situation. He was skeptical of giving up his responsibilities in the East and hesitant to abandon his beloved research, the geology of the southwestern states (E. H. Gregory 1966). But his appetite for the Pacific had been whetted in 1915 by a trip to Australia and New Zealand; and on the return voyage he had visited Ha-

waii, where a group of former Yale students impressed upon him the great potential for significant scientific research in the Pacific. It was decided that he would teach at Yale during the fall term, then go to Hawaii to direct activities at the Bishop Museum from January until the summer, returning to the East by way of his research sites in Utah and Colorado.

Gregory quickly became one of the most eloquent advocates of coordinated, cooperative research in the Pacific. He had been active in the establishment of the National Research Council (NRC) in 1916 and was chairman of its Committee on Pacific Investigations by 1919, a position he held until 1946. The committee had been anxious to arrange an international gathering of Pacific scientists, with the purpose of establishing a priority listing of research problems in the region. When in June 1919 the Denison committee was formed to lay plans for the first educational and commercial conference, Gregory's name immediately appeared on the list of committee members. It is entirely possible, therefore, that Gregory prevailed upon the Denison committee to make the first Pan-Pacific conference a scientific one. Direct evidence of his influence is lacking, but the circumstances suggest that the new director of the Bishop Museum would have had an active voice on the committee. Once the committee agreed that science would be the focus, they requested (through the museum trustees) that Gregory take charge of organizing the conference.¹¹

With the advice of the NRC Committee on Pacific Investigations, whose members then included Davis and Daly of Harvard and Ritter of Scripps (H. E. Gregory 1920), Gregory assembled a program and a list of scientists to be invited. Additional financial support was contributed by Australia and New Zealand (\$3000) and China (\$1000), bringing the total governmental allocations

¹¹Gregory was in Honolulu from at least 1 May until about 1 September 1919, when he left for teaching and museum responsibilities on the mainland (Bernice P. Bishop Museum 1919).

for the conference to \$23,000. Ford and the PPU were delighted to have Gregory take the lead in organizing the conference. To Ford it signaled that the ideals of his Pan-Pacific movement had been acknowledged by scientists of national stature. In January 1920 Ford wrote to Governor McCarthy from Washington, where he was lobbying for additional conference support: "Until Dr. Gregory came into the movement I have never had the co-operation of any really big man who would give his time to the work. Dr. Gregory is a wonder, it is a supreme privilege to work with such a man. I believe he is a firm friend and a believer in my methods of work, he taking up where I leave off ..." (Ford 1920, Noble 1980). Arrangements for the conference proceeded smoothly, with one exception. In May, just 3 months before the conference was to open, the U.S. State Department informed Ford that it had received no official invitation, and thus the United States could not recognize the existence of the conference nor appoint delegates to it—an embarrassing situation, especially if the organizing chairman, Gregory, was himself to be a delegate from the United States. Eventually the muddle was clarified by having the PPU issue the formal call for the conference while Gregory forwarded to Washington the proposed list of U.S. delegates to be invited by the State Department (Ford 1920).

That such a situation could arise, however, suggests that there may well have been a void, in communication if not in understanding, at the point where the ever-optimistic visions of Ford were translated into the practical organizing functions of Gregory. Ford's modus operandi was that of the conceptualizer, not the administrator; he was constantly creating a new scheme, then trying to place it in the hands of others for execution so that he could be free to move on to the next scheme. After all the effort he had invested in bringing about the first scientific conference, he had little interest in attending it himself. When the conference got underway in August, Ford was conducting a congressional tour through the Orient.

There are few hints indicating how Ford and Gregory, the two most important figures

behind the conference, got on in later years, but what evidence there is suggests that relations were not always cordial. In 1921 Ford created the Pan-Pacific Research Council, with William Brigham as its chairman (McCarthy 1920), to discuss possible projects in applied science, especially agriculture. The council evolved, in 1924, into the more viable Pan-Pacific Research Institute, a mini-think tank and gathering place for visiting scientists and students, with an oceanographic focus (Hooper 1980; see also Ford 1921, Lillie 1927, Robb and Vicars 1982). Ford had little interest in scientific knowledge, however, except that which might be immediately applied to human problems in the Pacific. In 1925 he asked Gregory for assistance should matters of pure science come before the PPU: "we may [Ford wrote] be dragged into pure science once in awhile when it is our desire not to delve deeper than economic science" (Ford 1925). But later the same year the two became embroiled briefly in a battle over who should take the credit for organizing the 1920 conference (Bulletin of the Pan-Pacific Union 1925, Hooper 1972, Noble 1980). One suspects that their strong, divergent personalities led them to respect but avoid one another.

The 1920 conference may have been the smallest of the Pacific science congresses (103 participants are listed [Delegates 1921]: Hawaii (46), United States (36), Australia (7), Philippines (4), Japan (4), New Zealand (3), Canada (1), United Kingdom (1), China (1); other sources inexplicably list total attendance as 93 or 101), but in terms of scientific content and resolutions, cooperative spirit, pageantry, and camaraderie, it lacked nothing. Scientific sessions concentrated on ocean currents, Hawaiian flora and fauna, race relations, animal distribution in the Pacific, geographical and geological mapping, seismology and volcanology, the training of scientists for work in the Pacific, and scientific institutions around the Pacific and their history. Among the participants, curiously, were the two earlier antagonists, Bryan and Brigham. Bryan, living in Los Angeles and soon to become director of the Los Angeles County Museum, had just returned from explorations along the Central and South Amer-

ican coasts to Easter and Juan Fernandez islands; he spoke on the origins of the Hawaiian flora and fauna. Brigham (1921) gave one of the opening-day addresses, on Hawaiian anthropology; and in a later anthropological section meeting, harking back to those PSI hopes of 1906 he spoke on "plans for an extended exploration of the Pacific."

With a view of imparting a distinct impetus to future Pacific research, the conference passed some 39 resolutions. These resolutions specified that, *inter alia*, governments be urged to support survey ships for Pacific exploration; geological surveys be conducted of Easter Island, the Hawaiian Islands, and islands of eastern Fiji; the Pacific Ocean bottom be mapped more accurately and magnetic surveys underway be completed; new permanent volcano observatories be set up around the Pacific and a meteorological station for upper air studies be erected on Mauna Loa; a comprehensive survey of Pacific fisheries be instigated; surveys of fauna and flora be conducted, especially on small islands where extinction might be imminent and in areas where there had recently been volcanic activity; the origins of Pacific Island peoples, especially the Polynesians, be pursued; and, finally, that the governor of Hawaii take action to create a permanent organization for the advancement of Pacific science (Secretariat of the Pacific Science Council 1951). Four years later, when the second congress had concluded and plans were being laid for a third, Gregory proudly reported: "The resolutions adopted are not generalized statements of obvious possibilities in the advancement of science; they relate to urgent, well-defined pieces of work within the scope and means of the institutions and government bureaus concerned. Most of the investigations called for by the Honolulu Conference have been completed or are in progress ..." (Gregory 1924a).

The first conference had moments of majesty and mirth. Plenary sessions were held in the throne room and executive chamber of Iolani Palace (the Executive Office Building since the overthrow of the monarchy). During the second week the conference party moved

to the island of Hawaii where delegates made the trek to Kilauea volcano, fortunately active. Strictly social activities included a dinner at the venerable Moana Hotel hosted by Governor McCarthy and an after-dinner one-act play in four "scenes": Eocene, Miocene, Pliocene, and Obscene—demonstrating once again that the geologists were in control of things.

The spirit of the first conference was probably best preserved in the following poem, read at the conference after the delegates' visit to the volcano district of Kilauea. Apparently penned by Henry S. Washington (1921), geologist of the Carnegie Institute, it is entitled "Pele to the Pan-Pacifics" (a reply from the volcano goddess Pele to her visitors).

I've heard of many a conference in my day,
Aloha to the first upon this spot.
All delegates are queer—I've heard men say—
But these must be the queerest of the lot.
They raise the ocean floor from 'neath its ooze
To make a bridge for slimy snails to tread;
Eat poi, and drink okolehao booze;
Or snatch the very hair from off my head.
They are botanists, zoologists, or wuss;
They're bald, or bear long, shaggy, silver hair;
They speak in words more syllabled than Russ;
Of everything on earth, in sea or air.

They're flirting with my shy endemic plants;
Or hunting fierce achatinellid snails;
There's one who can the hula hula dance,
One looks for blue-green algae 'long the trails.
Some chase the corals o'er the craggy reefs
Where "papa hee nalus" dot the foam;
They argue whether Melanesian chiefs
In Mayflower-laden boats came to my home.
Pan-Pacific is a versatile old boy—
He'll talk on anything you wish,
From plankton to the ropy pahoehoe;
From Polynesian races down to fish.

There's one who is the only man who kens
How pahoehoe is different from aa;
Another, by the zigzags of some pens,
Can spot a typhoon leagues outside the bar.
There's one who says his prayers in pure Fiji,
Another writes on "Useful Pants of Guam,"
A third just longs for sweet tranquility,
A fourth drives off leaf hoppers from the farm.
Anthropologist, geodesist, or such,
You've trod my lumpy aa lava plain,
You've felt my liquid sunshine's gentle touch—
We kamaainas know you'll come again.

Hawaii Nei's done her trade-wind freshened best
 To make your stay a dream of sheer delight—
 A red-stoned, golden-lettered, spell of rest
 Along your path of learning all in sight.
 So here's to you, Pan-Pacific,
 As you leave my fair Hawaii—
 Though your pidgin's scientific
 I sure hate to say good-bye
 Aloha! Pan-Pacific!
 As you sail across the blue,
 From the islands beatific
 Pele's best regards to you.¹²

In the final days of the conference, symposia were conducted on "Means and Methods of Cooperation" and "Training Scientists for Pacific Work." Remarks made by participants in those symposia demonstrate that they valued the conference for reasons that go well beyond those outlined at the beginning of this paper. First, there was the hope that the work of the conference would persuade scientists' home governments to take a more serious interest in the support of science. For example, John Henderson, zoologist for the U.S. National Museum of Natural History, advocated the passage of a resolution that would aid the museum in obtaining funding from Congress to work up existing Pacific collections. Similarly, Henry C. Richards, professor of geology at the University of Queensland, argued that the influence of Australian universities had not been sufficient to persuade the government to establish fellowships for research in Pacific islands. But "if we can go home from the Conference and absolutely convince the Commonwealth government that it is their job to carry out this work, it will be of considerable help." Josephine Tilden, professor of botany at the University of Minnesota, hoped that the conference would recommend to universities that fellowships for study in the Pacific be established in scientific departments. And J. Allan

Thomson, geologist and director of the Dominion Museum, Wellington, complained that "a prophet has no honor in his own country We find it sometimes very hard, although we make out a very good case, to get the Government to act, and for that reason we always welcome any external pressure. For instance, if any suggestion comes from official circles in London it is acted upon at once, whereas we may have been advocating the same thing for years without the least response" (Proceedings of the First Pan-Pacific Scientific Conference 1921).

Sometimes the problem was not the allocation of new funds to science but a reprogramming of existing funds. C. M. Fraser, director of the biological station at Nanaimo, British Columbia, pointed out that the emphasis in Canadian scientific funding was toward the Atlantic; and until there was a reorientation toward the Pacific, the institutions on the West Coast would have to provide assistance to each other and solicit the cooperation of their counterparts around the Pacific. Another proposal came from T. C. Frye of the Puget Sound Biological Station, who asked that the conference recommend to the governments concerned that fares for shipboard travel in the Pacific be reduced for scientists en route to and from research sites (Proceedings of the First Pan-Pacific Scientific Conference 1921).

Finally, participants spoke repeatedly of the value of the conference in facilitating cooperation among individual scientists, a factor especially crucial in Pacific research. Herbert Gregory summed this up well, emphasizing that Pacific problems are often too large and entail too many specialties to be effectively treated by scientists working independently.

Discussions during this Conference have shown clearly that the scientific problems of the Pacific are not one-man jobs. They are either too complex to be grasped by one mind or require masses of data impossible to be obtained even by a Methuselah. Such problems as we have discussed here can be successfully attacked only by cooperative effort and that on a generous scale. Whether or not we like the feeling, we might as well humbly recognize that problems whose significance justify a lifetime of

¹²"Okolehao" refers to a local alcoholic beverage made from sugarcane; Achatinellidae is a group of land snails (now the subfamily Achatinellinae) endemic to the Hawaiian Islands; "papa hee nalus" are surfers; "pahoe hoe" and "aa" are the names for the ropy and clinker forms of lava, respectively; "kamaaina" is the Hawaiian name for a long-time resident of the Islands.

devoted effort, are too big for one man or for one institution. (Proceedings of the First Pan-Pacific Science Conference 1921)

Pacific science was, from the outset, Big Science.

FROM CONFERENCE TO ASSOCIATION

As the conference drew to a close, arrangements were made with the Bishop Museum to publish the proceedings and to act as an interim representative of the delegates until the next congress. A committee of six, chaired by Gregory, was appointed to make preparations for a second Pan-Pacific congress. The committee itself was not funded or formally empowered to call a second meeting, but the members of the committee could exert influence on their respective governments and national academies of science. This strategy proved its soundness when committee member E. C. Andrews, chief of the New South Wales Geological Survey, convinced geologist Sir Edgeworth David and chemist Sir David Orme Masson that the second congress should be held in Australia. Masson, then president of the Australian National Research Council, presided over the second congress, held in Melbourne and Sydney in August and September 1923 (Figure 1).

During the general meeting at Sydney, a permanent organization was proposed and an international organization committee representing each of the participating countries was formed to draw up a constitution. The resulting document was approved with minimal changes at the third congress (Tokyo) on 11 November 1926, marking the official beginning of the PSA (Elkin 1961).

Whereas the first conference had depended heavily on personal contacts and had a very local, unofficial flavor, the second and subsequent congresses had their basis in government agencies and formal scientific institutions (Elkin 1961). Scientific cooperation was increasingly seen as a vehicle for improving international relations and preserving peace in the Pacific region. This became evident in the opening addresses of the Australia meet-

ing and was formalized in article 2 of the constitution: "The main object of the Association shall be . . . to strengthen the bonds of peace among Pacific peoples by promoting a feeling of brotherhood among the scientists of all the Pacific countries" (Secretariat of the Pacific Science Council 1951).

The formal establishment of PSA was not seen as a license to set up a large administrative structure. In fact, Gregory and others insisted that the burden of administration be assumed by the nation (and especially its national research council) hosting the next congress. The only standing body was to be the Pacific Science Council, composed of representatives from the 10 to 15 most active nations. Two decades later, Gregory could still proclaim happily that the association had "no president, no secretary, no auditor, no editor, no membership list and handled no funds" (Elkin 1961). But by 1949 the need for greater administrative continuity had become apparent, and at the seventh congress (New Zealand), the constitution was amended to create a permanent secretariat with an executive secretary. The secretariat was charged primarily with distributing Pacific scientific information, storing the records of the association, and providing assistance to institutions and individuals in carrying out the resolutions of the congresses.

Because PSA's focus was on the prosperity and problems of a particular geographic region, its congresses differed markedly in their organization from the meetings of typical national associations for the advancement of science. Individual contributions were organized not into sections by scientific speciality but into thematic symposia that were often interdisciplinary. Standing committees of scientists, sanctioned by the constitution to organize cooperative research, also reflected the problem-oriented, interdisciplinary nature of the association's interests (Elkin 1961). Both the structure and the focus of these standing committees have been in constant flux because of changes in Pacific problems and because of the regular turnover of host countries charged with determining the symposia of the next congress. Such a system might seem chaotic in the short run, but in



FIGURE 1. Sir Edgeworth David and Australian fauna greet delegates to the Second Pan-Pacific Science Congress, Australia, August 1923. The cartoon, by Hal Eyre Sen, appeared in the *Daily Telegraph*, Sydney (courtesy of University of Sydney Archives).

the long run it seems to have contributed substantially to the organization's adaptiveness.¹³

The First Pan-Pacific Science Conference was a product of two independent movements, backed by the energies of two quite different personalities. For over 30 years, Alexander Hume Ford was untiring in his promotion of a Hawaii-centered Pacific

¹³ In a future paper I hope to examine in detail these changes in scientific focus, as an index to the altering perceptions of Pacific problems in the twentieth century. Such an analysis would, it is hoped, generate insights into such areas as the stimulus of the Depression upon the social sciences, the scientific impact of World War II, the role of science in the rise of autonomous island nations, and the significance of non-Western, nonexploitative approaches in Pacific science.

brotherhood of nations, eagerly latching onto any approach toward that end, science included. Herbert Gregory and his associates of the NRC Committee on Pacific Investigations saw the Pacific as a vast arena for scientific research. In spite of expeditions from Cook to *Challenger*, knowledge of the Pacific was still fragmentary. Moreover, there was an urgency in this research: human problems required solutions, and surveys of Pacific ethnography and natural history were needed before the data were lost for all time. The union of Ford's internationalism and Gregory's scientism created a durable organization in the 1920s, one that would pride itself on solid achievements and a progressive outlook, while on the other side of the world Europeans were mourning "the decline of the West."

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